AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) ~~Use of an Id gene product in~~ A method of promoting self-renewal of pluripotent cells in culture, comprising culturing pluripotent cells in a medium comprising an Id gene product.

2. (Currently amended) ~~Use~~ The method according to Claim 1 ~~of a combination of the Id gene product with~~, wherein the medium further comprises an activator of a gp130 downstream signalling pathway.

3. (Currently amended) ~~Use of a combination of~~ The method according to Claim 1, wherein the

~~(i) an agent that increases Id protein expression or activity; and~~

~~(ii) an activator of a gp130 downstream signalling pathway, in promoting self-renewal of pluripotent cells in culture in~~ medium ~~that~~ is free of serum and free of serum extract.

4. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-3~~ Claim 2, wherein the activator of a gp130 downstream signalling pathway is LIF.

5. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-4~~ Claim 1, wherein the pluripotent cells are embryonic stem cells.

6. (Currently amended) ~~Use~~ The method according to Claim 5 wherein the embryonic stem cells are mouse cells or human cells.

7. (Canceled)

8. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-7~~ Claim 1, further comprising inducing expression of an Id gene.

9. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-8~~ Claim 8, ~~comprising~~ wherein the expression of an Id gene is induced by genetically manipulating a pluripotent cell so that it expresses an Id gene.

10. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-9~~Claim 8, ~~comprising~~ wherein the expression of an Id gene is induced by introducing into a pluripotent cell a vector comprising an Id gene.

11. (Currently amended) ~~Use~~ The method according to ~~any of Claims 1-11~~ Claim 1 wherein the Id gene product is an Id protein.

12. (Currently amended) A method of promoting self-renewal of a pluripotent cell in culture in medium that is free of serum and free of serum extract, comprising (1) expressing an Id gene or inducing expression of an Id gene in the cell, or culturing the cell in medium containing an Id protein, and (2) activating ~~GP130~~ gp130 downstream signalling.

13. (Currently amended) ~~A~~ The method according to Claim 12, comprising

expressing an Id gene episomally in the cell.

14. (Currently amended) ~~A~~ The method according to Claim 13 comprising expressing an id gene from an episomal vector comprising an inducible promoter.

15. (Currently amended) ~~A~~ The method according to ~~any of Claims 12-14~~ Claim 12, comprising ~~stimulating~~ activating gp130 downstream signalling by culturing the cell in medium comprising a cytokine acting through gp130.

16. (Currently amended) ~~A~~ The method according to Claim 15 wherein the cytokine is selected from the group consisting of LIF, CNTF, Cardiotrophin, Oncostatin M and a combination of IL-6 plus sIL-6 receptor.

17. (Currently amended) ~~Use of a combination of~~ A method of promoting self-renewal of a pluripotent cell in culture, comprising culturing a pluripotent cell in a medium comprising:

(a) a direct activator or effector of Id gene expression and/or Id protein activity, other than one acting through a receptor of the TGF-β superfamily; and

(b) an activator of a gp130 downstream signalling pathway, ~~in promoting self-renewal of a pluripotent cell in culture in~~ wherein the medium ~~that~~ is free of serum and free of serum extract.

18. (Currently amended) A method of culture of ES cells ~~so as~~ to promote ES cell self renewal in medium that is free of serum and free of serum extract, comprising maintaining the ES cells in medium ~~containing~~ comprising:

(a) an Id protein or a direct activator or effector of Id gene expression and/or Id protein activity, other than one acting through a receptor of the TGF-β superfamily; and

(b) an activator of a gp130 downstream signalling pathway.

19. (Currently amended) A method of culture of ES cells, comprising the steps of:

(a) maintaining the ES cells in a pluripotent state in culture, optionally on feeders feeder cells, in the presence of a cytokine acting ~~though~~ through gp130 and serum or an extract of serum;

(b) passaging the ES cells at least once;

(c) withdrawing the serum or the serum extract from the medium and withdrawing the ~~feeders~~ feeder cells if present, so that the medium is free of ~~feeders~~ feeder cells, serum and serum extract; and

(d) subsequently maintaining ES cells in a pluripotent state ~~in the presence of~~ by culturing the cells in a medium comprising:

(i) a direct activator or effector of Id gene expression and/or Id protein activity, other than one acting through the receptor of the

TGF-β superfamily; and

(ii) an activator of a gp130 downstream signalling pathway.

20. (Currently Amended) A method of obtaining a transfected population of ES cells, comprising the steps of:

(a) transfecting ES cells with a construct encoding a selectable marker operably linked to a promoter that expresses the selectable marker preferentially in an ES cell:

(b) plating the ES cells;

(c) culturing the ES cells in the presence of

(i) a direct activator or effector of Id gene expression and/or Id protein activity, other than one activator acting through a receptor of the TGF-β superfamily; and

(ii) an activator of a gp130 downstream signalling pathway; and

(d) selecting for cells that express the selectable marker.

21. (Original) A method of culture of ES cells in medium that is free of serum and free of serum extract, comprising transferring an individual ES cell to a culture vessel and culturing the ES cell in the presence of

(a) a direct activator or effector of Id gene expression and/or Id protein

activity, other than one acting through a receptor of the TGF-β superfamily; and

(b) an activator of a gp130 downstream signalling pathway, so as to obtain a clonal population of ES cells, all of which are progeny of a single ES cell.

22. (Currently amended) A medium for self-renewal of ES cells, comprising:

~~(1)~~ (a) basal medium;

~~(2)~~ (b) a direct activator or effector of Id gene expression and/or Id protein activity, other than one acting through a receptor of the TGF-β superfamily;

~~(3)~~ (c) an activator of gp130 downstream signalling pathways; and

~~(4)~~ (d) an iron transporter,

wherein the medium is free of serum or serum extract.

23. (Currently amended) ~~Use of~~ A method of promoting self-renewal of pluripotent cells in culture, comprising culturing pluripotent cells in a medium comprising an agent that increases Id protein activity ~~in a pluripotent cell, in promoting self-renewal of the pluripotent cell in~~, wherein the medium ~~that~~ is free of serum and free of serum extract.

24. (Currently amended) ~~Use~~ The method according to Claim 23 wherein the agent increases the amount of Id protein in the cell.

25. (Currently amended) ~~Use~~ The method according to Claim 23 wherein the agent comprises a composition comprising an Id protein and a translocation domain.

26. (Currently amended) ~~Use~~ The method according to ~~claim~~ Claim 25, wherein the composition comprises a fusion protein of the Id protein and the translocation domain.

27. (Currently amended) ~~Use~~ The method according to ~~claim~~ Claim 25, wherein the translocation domain comprises TAT, VP22 or a penetratin.

28. (Original) A method of obtaining a pluripotent cell in medium that is free of serum and free of serum extract, comprising

expressing an Id gene or inducing expression of an Id gene in a cell, or culturing a cell in medium containing an Id protein, and activating gp130 downstream signalling in the cell, wherein the cell is obtained from somatic cells or tissue of a fetus or adult.

29. (Currently amended) ~~A~~ The method according to ~~claim~~ Claim 28, wherein the pluripotent cell is characterised by being positive for Rex1, Oct4 and nanog.

30. (Currently amended) A cell obtained by ~~a method according to any of claims~~

~~28 to 29~~ the method of Claim 28.

31. (New) A method of promoting self-renewal of pluripotent cells in culture, comprising culturing pluripotent cells in a medium comprising:

(a) an agent that increases Id gene expression or activity; and

(b) an activator of a gp130 downstream signalling pathway, wherein the medium is free of serum and free of serum extract.

32. (New) The method according to Claim 31, wherein the activator of a gp130 downstream signalling pathway is LIF.

33. (New) The method according to Claim 31, wherein the pluripotent stem cells are embryonic stem cells.

34. (New) The method according to Claim 33, wherein the embryonic stem cells are mouse cells or human cells.

35. (New) The method according to Claim 31, wherein the agent (i) is selected from the group consisting of fibronectin, agonists of the fibronectin receptor, activators of integrin signalling, nanog, and homologues thereof that induce Id gene expression or Id protein activity.

36. (New) The method according to Claim 31, further comprising inducing expression of an Id gene.

37. (New) The method according to claim 36, wherein the expression of an Id gene is induced by genetically manipulating a pluripotent cell so that it expresses an Id gene.

38. (New) The method according to Claim 36, wherein the expression of an Id gene is induced by introducing into a pluripotent cell a vector comprising an Id gene.